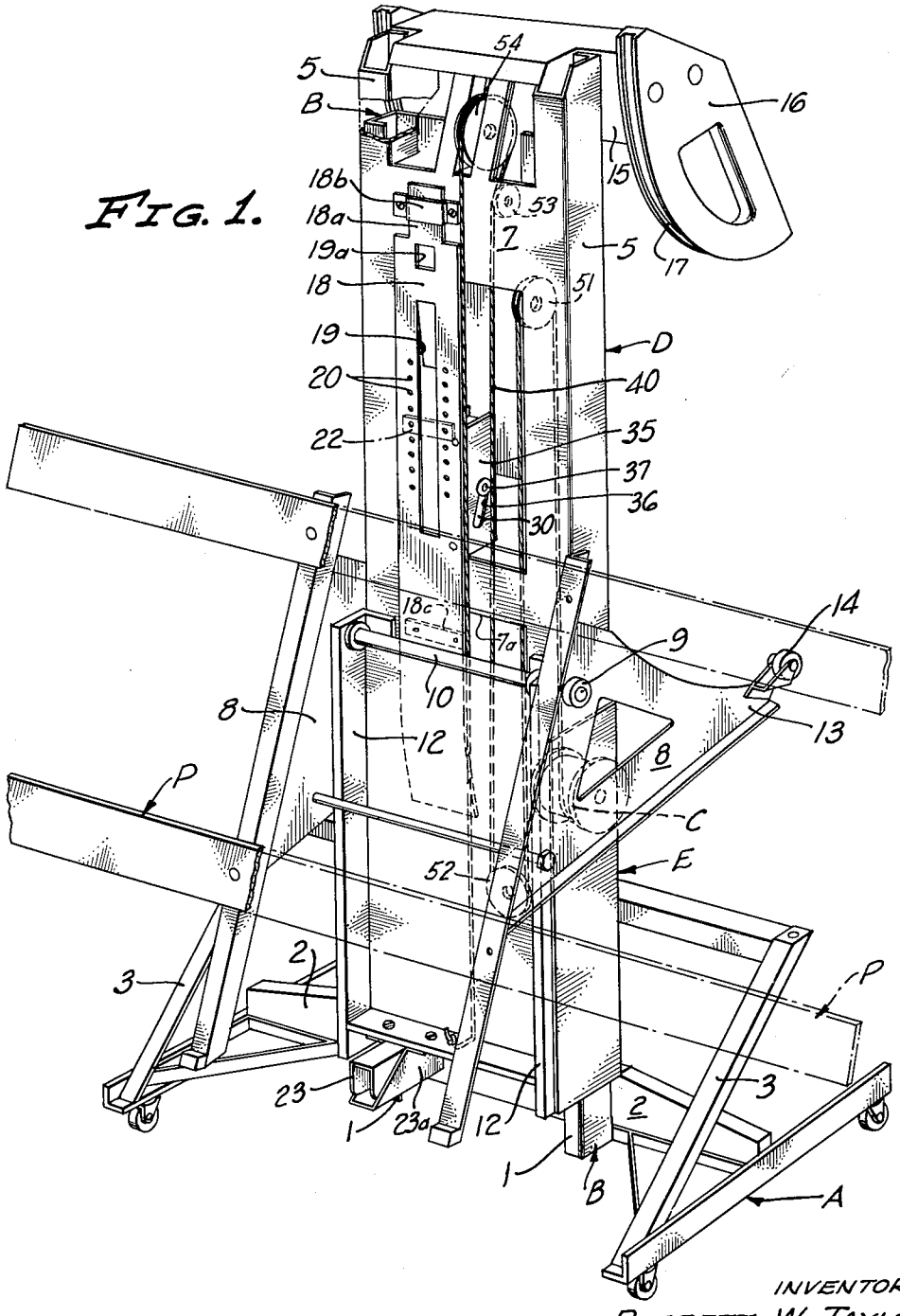
Feb. 6, 1962 B. W. TAYLOR 3,019,914

APPARATUS FOR INSTALLING WALLBOARD ON CEILINGS

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FIG. 1.



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FIG. 2.

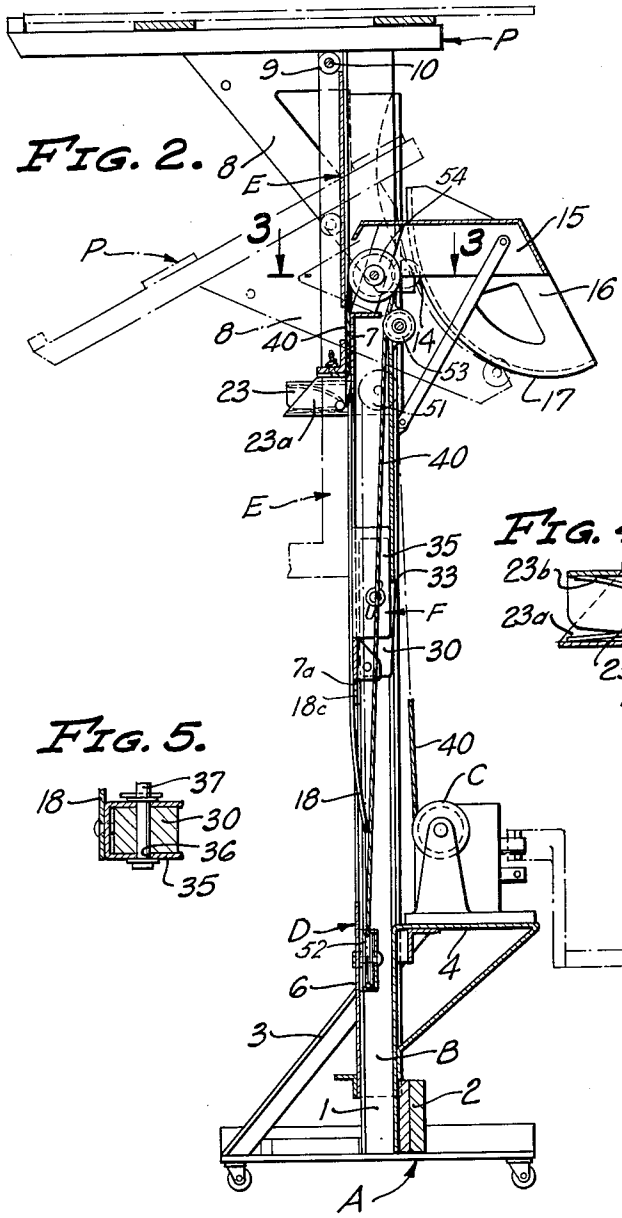


FIG. 3.

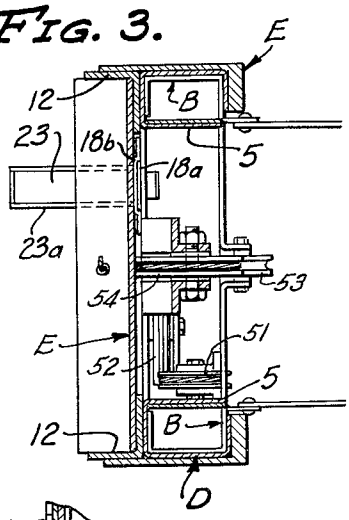


FIG. 4.

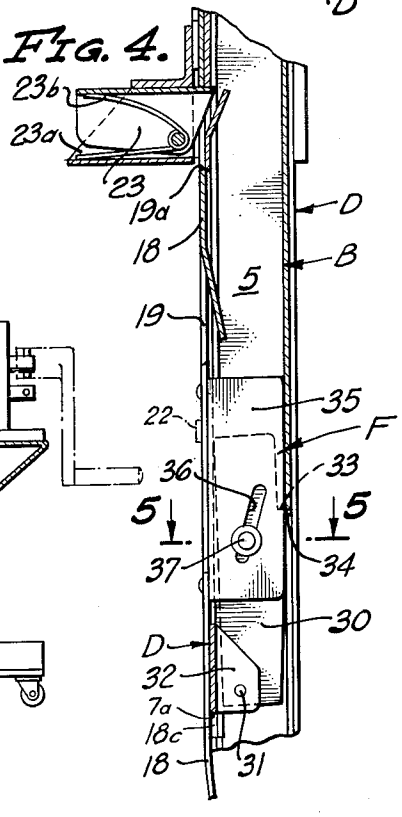


FIG. 5.

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3,019,914
APPARATUS FOR INSTALLING WALLBOARD ON CEILINGS

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Filed Sept. 23, 1959, Ser. No. 841,851
9 Claims. (Cl. 214—1)

This invention relates to an apparatus for installing wall board on ceilings, and is an improvement upon my patent, No. 2,719,060, dated September 27, 1955.

In the patent above referred to, the upright frame was of fixed height and, moreover, could only be used on flat ceilings.

One of the objects of the present invention is to provide an upright frame comprising a relatively fixed upright section and an adjustable upper section telescopically related to the fixed section to enable the wallboard lifting platform to be moved to selected elevations to compensate for ceilings of different heights while at the same time the apparatus when collapsed can be moved through a doorway of standard height.

Another object of the invention is to provide a lifting platform that will automatically come to rest at a preset selected angle in relation to the vertical main frame after the travel of the adjustable upper section has been arrested. For example, in my former patent, the wallboard could only be lifted upwardly to a horizontal position to enable it to be applied to a horizontal ceiling. However, in the present invention it is intended to provide a vertically adjustable main frame which is not limited to positioning the wallboard solely in a horizontal plane, but which can also successively be moved to predetermined tilted positions to prepare a pitched or cathedral type ceiling.

With the above and other objects in view which will appear as the nature of the invention is better understood, the invention consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

FIGURE 1 is a perspective view of the improved apparatus in its fully retracted or collapsed position.

FIGURE 2 is a side elevation illustrating the apparatus in its intermediate position, with the platform shown in phantom lines in the position which it would assume if a cleat were disposed in the position shown in phantom lines in FIGURE 1.

FIGURE 3 is a horizontal cross section taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a detail view of the latch mechanism which limits the upward movement of the movable upper section.

FIGURE 5 is a detail horizontal cross-section taken on the line 5—5 of FIGURE 4.

Referring to FIGURE 1, it will be seen that the wheeled dolly A rigidly supports a lower upright relatively fixed frame section B. This frame may include laterally spaced uprights or bars 1—1 or may be a single member of channel shaped cross-sections braced by the transverse cross-member 2 at the bottom of the dolly.

As will also be apparent from FIGURES 1 and 2, the fixed frame section B may also be braced by the angular struts 3 and in turn supports a shelf 4 upon which the winding drum C is mounted. This drum is operated by the same arrangement shown in FIGURE 3 of my former patent. A cable 40 is secured at one end to the drum C. The cable 40 extends upwardly and around a pulley 51, which is attached to the upper end of the fixed frame B. The cable 40 then extends downwardly and around a second pulley 52, which is attached to the lower portion of the frame D. The cable 40 then extends upwardly past an idler pulley 53 and around a pulley 54, which is attached to the upper end of the frame D. The cable 40 then extends downwardly and is attached at its opposite end to the bottom of the carriage E.

When the drum C is rotated, all of the pulleys remain stationary and the carriage E is pulled upwardly to the top of the frame D. When the frame D is released from the fixed frame B, the cable 40 pulls both the carriage E and frame D upwardly together. The pulleys 52 and 54 and the idler pulley 53 then move upwardly together, while the pulley 51 remains stationary. As the frame D is raised, the length of the cable 40 between the pulleys 51 and 52 is shortened. During the lifting operation, the drum C and pulley 52 rotate in a counter-clockwise direction, while the pulleys 51 and 54 rotate in a clockwise direction.

The vertical fixed frame B is telescopically related to an adjustable upper frame section D which may be raised to a desired elevated position as determined by the height of the ceiling to be erected. To that end, the upper frame may also include channel type side rails 5 which slidably telescope over the uprights 1—1. On the other hand, the movable frame section D can be a single channel mating with and fitting over the frame B. In either case the side rails 5 are preferably connected by a lower transverse web 6 and an upper transverse web 7.

The upper adjustable frame D slidably carries the wallboard receiving and erecting platform P which normally occupies the full line position shown in FIGURE 1 to facilitate loading. This platform is provided with the rearwardly extending and laterally offset tripping arms 8 pivotally supported at 9 on the cross shaft 10 supported in the flanges 12 of a platform carriage E which slides on frame D. Each tripping arm is provided with a rearwardly extended portion 13 having a roller 14 at its free end.

The adjustable frame D at its upper end (FIGURE 1), is provided with rearwardly extending portions 15 which in turn support the rigid cam segments 16 whose peripheral portions 17 are formed as channel-shaped guides to receive the rollers 14 when the platform P is lifted to engage the segments and thus begin its angular movement from its normal at-rest position to its ultimate service position.

The frame D is provided with an elongated vertically movable plate 18 having a center slot 19, keeper slot 19^a, and adjustable abutment openings 20 along the edges of the slot. The upper end of the elongated movable plate 18 is reduced in width as at 18^a to be guided for limited sliding movement beneath strap 18^b.

The openings 20 are intended to receive the fastenings of an abutment member or cleat 22 which may be set at any selected elevation spanning the slot 19 when it is desired to arrest the movement of the wallboard platform in an angular position such as shown for example in dotted lines in FIGURE 2. A dog 23 is mounted on the bottom frame part of the platform carriage E so that after it trails over the lower ramp end of the plate 18 it will drop into the slot 19 and, if the abutment 22 is in place the dog will strike cleat 22, arrest the turning movement of the platform and hold it at the proper angular position to enable the wallboard to be secured to an inclined ceiling.

The dog 23 is spring-pressed out of its casing 23^a by a spring 23^b so that it is in position to engage in the keeper recess 19^a after it has passed through the elongated slot 19 leading up to said recess so that further movement of the carriage E and dog 23 will cause elongated plate 18 to move upward a short distance as limited by the strap 18^b. This relatively short movement or stroke is intended to effect the actuation of a coupling device designated generally as F, which releases or dis-

connects the upwardly slidable frame D from the fixed upright frame B as shown in FIGURE 4.

Referring more in detail to the coupling member F, it will be observed that the same includes a latch member 30 which is pivoted at 31 to the spaced arms of a bracket 32 carried by the inner face of the movable frame D. The latch member 30 is provided on one edge with a shoulder 33 which, when D is in its lowermost position, engages behind the shoulder 34 on the fixed frame B. The upper portion of the latch 30 is substantially embraced by the channel shaped member 35 which is carried by the plate 18. The side walls of the channel shaped member are provided with slots 36 which are diagonally disposed and slidably receive a pin 37 which causes the shoulder 33 on 30 to become disengaged by counterclockwise rocking movement. After shoulder 33 on latch 30 and shoulder 34 on stationary part B have been disengaged, the frame D is free to move upwardly along with the carriage E which has the dog 23 attached thereto.

The sequence of operation is substantially as follows:

As the drum C is actuated by its handle, the cable 40 causes the wallboard platform carriage E to start its upward movement. During this first phase of operation, that is, as the carriage moves upwardly, the movable section D remains stationary.

The carriage E continues upwardly together with the tripping arms 8 until the rollers 14 engage with the track portions 17 of the tripping cams 16, and if no abutment or cleat 22 is positioned as previously described, the carriage and platform continue upward movement until platform P is pivoted toward a horizontal position. It will of course be understood that if the ceiling is flat, and no abutment cleat 22 is used, there is nothing to prevent the platform moving until its wallboard carrying portion is completely horizontal.

As the carriage E moves upwardly, the dog 23 will drop into the square opening 19^a at the top of the plate 18 and move the plate 18 upwardly to release the coupling member F so that the movable frame D is free for upward movement with respect to the fixed frame B.

The front of the frame D includes a web having a lower edge 7^a, which extends transversely with respect to the plate 18. Attached to the rear of the plate 18 is an elongated transverse bar 18^c, which is disposed a short distance beneath the edge 7^a of the frame D when the plate 18 is in its normal position. When the plate 18 is moved upwardly by the dog 23, the bar 18^c engages the edge 7^a so that the frame D is moved upwardly along with the carriage E to carry the wallboard up to the ceiling.

It will now be seen that the operating cycle of the device is what may be conveniently termed a two-stage operation.

In the first stage the platform P is raised and pivoted to the desired angle. In the second stage it is carried on up to the ceiling. In the first stage only the carriage E moves while D and B both remain stationary.

In the second stage, D is moved with respect to B while E remains stationary with respect to D and is merely carried up as D moves upwardly with respect to B because of the connection established by dog 23.

At the risk of repetition, it may be also stated that the abutment cleat 22 is optionally used to limit or shorten the stroke of stage 1 and set stage 2 in operation before the platform reaches its horizontal position.

I claim:

1. An apparatus for lifting wallboard to installing position, comprising, a mobile support, a frame fixed to said support and having a shoulder, a movable extension section slidably mounted on said frame, cam segments fixed to the upper end of said movable section, an elongated plate also carried by said movable section shiftable relative thereto, a carriage slidably mounted on said movable section, a wallboard platform mounted on said carriage, means on the bottom of the carriage for engaging said movable section, means on the plate of the movable section engaging the shoulder on the frame to prevent upward travel of said movable section, said means being released on the shifting movement of said plate to permit upward travel of said movable section, pulleys on the fixed frame and other pulleys on the movable section, a winding drum, and a cable having one end connected to the drum and the other end connected to the carriage while the intermediate reaches of said cable are sheaved over said pulleys.

2. An apparatus according to claim 1, wherein, an abutment cleat may be selectively connected with the plate to limit the upward movement of the carriage to hold the platform in tilted position.

3. An apparatus for lifting wallboard to installing position, comprising, a mobile support, a fixed upright frame carried by said support and having a shoulder, a movable section slidably mounted on said fixed frame, cam segments secured to the upper end portion of said movable section, an elongated plate also carried by said movable section and shiftable relative thereto, a carriage slidably mounted on said movable section, tripping arms carried by said carriage, a platform mounted on said carriage, means for moving said carriage upwardly with respect to said movable section to cause the tripping arms to engage the cam segments and tilt said platform toward horizontal position, a coupling element pivotally supported for rocking movement on the movable section and having a shoulder for normally engaging said shoulder on the fixed frame, means carried by said plate for actuating said coupling member to free the movable section from the shoulder on the fixed frame for upward movement relative to said fixed frame, and dogging means on said carriage for cooperation with said plate to actuate said coupling member and to move said movable section upwardly after it has been unlocked from said fixed frame.

4. An apparatus for lifting wallboard to installing position comprising a fixed frame having a shoulder, a movable section mounted on said frame for vertical movement with respect to said frame, a pair of arcuate cam segments mounted on the upper end of said movable section, a carriage slidably mounted on said movable section, a wallboard platform carried by said carriage, said platform being disposed toward a vertical position, a pair of tripping arms carried by said carriage, means for moving said carriage upwardly with respect to said movable section to cause said tripping arms to engage said arcuate cam segments and tilt said platform toward horizontal position, an elongated plate carried by said movable section and mounted for limited vertical movement relative thereto, a coupling element pivotally supported for rocking movement on said movable section, said coupling element having a shoulder normally engaging said fixed frame to prevent the movement of said movable section with respect to said fixed frame, and means carried by said carriage for engaging and moving said plate upwardly after said platform has been tilted toward horizontal position to release said coupling element and to move said movable section upwardly with said carriage.

5. An apparatus for lifting wallboard to installing position, comprising, a mobile support, a fixed upright frame carried by said support and having a shoulder, a movable section slidably mounted on said fixed frame, an elongated plate carried by said movable section and shiftable relative thereto, a carriage slidably mounted on said movable section, a platform mounted on said carriage, means for moving said carriage upwardly with respect to said movable section and tilting said platform toward horizontal position, a coupling member pivotally supported for rocking movement on the movable section and having a shoulder for normally engaging said shoulder on the fixed frame, means carried by said plate for actuating said coupling member to free the movable section from the abutment on the fixed frame for upward movement relative to said fixed frame, and dogging means on said carriage for cooperation with said plate to actuate said coupling member

and to move said movable section upwardly after it has been unlocked from said fixed frame.

6. The structure described in claim 5, and a vertically adjustable stop member mounted on said plate, said dogging means being adapted to engage said stop member to limit the tilting movement of said platform to a less than horizontal angular position determined by and corresponding to the vertical positioning of said stop member.

7. An apparatus for lifting wallboard to installing position comprising a fixed frame, a movable section mounted on said frame for vertical movement with respect to said frame, a pair of arcuate cam segments mounted on the upper end of said movable section, a carriage slidably mounted on said movable section, a wallboard platform carried by said carriage, said platform being disposed toward a vertical position, a pair of tripping arms carried by said carriage, means for moving said carriage upwardly with respect to said movable section to cause said tripping arms to engage said arcuate cam segments and tilt said platform toward horizontal position, a coupling element on said movable section, said coupling element normally engaging said fixed frame to prevent the movement of said movable section with respect to said fixed frame, means for releasing said coupling element after said platform has been tilted toward horizontal position and for moving said movable section upwardly with said carriage, a vertically adjustable stop member mounted on said movable section, and dogging means carried by said carriage for engaging said stop member to limit the tilting movement of said platform to a less than horizontal angular position corresponding to and determined by the vertical positioning of said vertically adjustable stop member.

8. An apparatus for lifting wallboard to installing position comprising a mobile support, a fixed upright frame carried by said support, a movable section slidably mounted on said fixed frame, an elongated plate carried by said movable section and shiftable relative thereto, a carriage slidably mounted on said movable section, a platform mounted on said carriage, means for moving said carriage upwardly with respect to said movable section and tilting said platform toward horizontal position, a coupling element on said movable section, said coupling element having a portion normally engaging said fixed frame, means carried by said plate for actuating said coupling element to free the movable section from the fixed frame for upward movement relative to said fixed frame, and dogging means on said carriage for cooperation with said plate to actuate said coupling member and to move said movable section upwardly after it has been unlocked from said fixed frame.

9. An apparatus for lifting wallboard to installing position comprising a fixed frame, a movable section mounted on said frame for vertical movement with respect to said frame, a carriage slidably mounted on said movable section, a wallboard platform carried by said carriage, said platform being disposed toward a vertical position, means for moving said carriage upwardly with respect to said movable section and tilting said platform toward horizontal position, a coupling element on said movable section, said coupling element having a portion normally engaging said fixed frame to prevent the movement of said movable section with respect to said fixed frame, means for releasing said coupling element after said platform has been tilted toward horizontal position and for moving said movable section upwardly with said carriage, and adjustable means engageable between said movable section and said carriage for limiting the tilting movement of said platform to any desired less than horizontal angular position prior to the release of said coupling element.

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